REMARKS

Claims 26 - 61 are pending in the application. Claims 40-61 have been withdrawn from consideration as being drawn to non-elected inventions. Claims 26-39 have been rejected.

Claims 27-39 have been amended to correct minor grammatical and typographical errors. Claim 30 has been amended to delete the term "said" and to recite magnification *of the image.* No new matter has been added.

In view of the remarks set forth herein, further and favorable consideration is respectfully requested.

THE INDEFINITENESS REJECTION

Claims 30, 38, and 39 have been rejected under 35 USC § 112, second paragraphs allegedly as being indefinite with regards to the terms "said magnification", "affinity microbeads" and "immunobeads". This rejection is traversed.

For expediency's sake claim 30 has been amended to delete the term "said" and to clarify that magnification *of the image* is achieved by the use of a light microscope lens.

The term *affinity microbead* is clearly defined in the specification, and is an art-recognized term. The specification at page 8, lines 8-12, describes that the *capturing agents* can be *microbeads* coated with specific *capturing moieties*, where the *capturing moieties* can be *binding sites* to which an *anlyte* that has *affinity* for the *binding site*, binds. The specification at page 9, first paragraph, describes that *microbeads* coated with a *capturing agent* may be referred to as *affinity beads.*

Regarding the term *immunobeads,* page 7, lines 19-29 of the specification, describes that the analyte can contain at least two *recognition sites* to which two *capturing agents* may bind, to form *binding couples.* Lines 25-29 describe that the *analyte* may include antigen-presenting particles to which the capturing agent can bind. In such a case, the *affinity microbeads* are *immunobeads.* The specification at page 9, lines 5-7, describes that according to one embodiment, the *microbeads* (*affinity microbeads*) can be *immunobeads.*

In addition, the claims themselves clearly set forth the meaning of the term *affinity microbeads.* For example, original claim 9 describes that the reagent comprising the capturing agent is a microbead having a sensing interface, the sensing interface carrying two or more copies of a capturing moiety such that if an analyte is present in the fluid sample, particulates of binding couples are formed by association of the capturing moieties on the microbead with recognition sites of said analyte. Original claim 12 describes that the microbeads of claim 9 are *affinity microbeads.*

In view of the above, it is submitted that the skilled artisan would understand the meaning of the claim terms *affinity microbead* and *immunobead* when claims 30, 38, and 39, are read in light of the specification. *See Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986).

The terms *affinity microbead* and *immunobead* are art recognized terms as evidenced by the following prior art documents. An I.D.S. and 1449-PTO form, and copies of the Abstract of each of documents 1-4 are provided herewith.

1. Ghossein, R. A., Carusone, L., Bhattacharva, S., *Molecular Detection of Micrometastases and Circulating Tumor Cells in Melanoma Prostatic and Breast Carcinomas.*, In Vivo., 14(1):237-50, (Jan.-Feb. 2000), uses the term *immunobeads.*
2. Lenzi, A., *Male Infertility: Evaluation of Human Sperm Function and its Clinical Application,* J. Endocrinol. Invest., 18(6):468-83, (June 1995), uses the term *immunobeads.*
3. Peters, A. J., Coulam, C. B., *Sperm Antibodies*, Am. J. Reprod. Immunol., 27(3-4):156-62 (Apr.-May 1992), uses the term *immunobeads.*
4. Garrido, N., Mesequer, M., Remohi, J., Pellicer, A., Simon, C., *Flow Cytometry in Human Reproductive Biology*, Gynecol. Endocrinol., 16(6):505-21 (Dec. 2002), uses the term *immunobeads.*
5. Bratthall, D., Ellen R. P., *Determination of Imunoglobulin A in Saliva by Immunobead Enzyme-Linked Immunosorbent Assay: Comparison with Single Radial Immunodiffusion*, J. Clin. Microbiol.,16(4):766-9 (Oct. 1982), uses the term *immunobeads.*
6. Sack, D. A., Neogi, P. K., Alam, M. K., *Immunobead Enzyme-Linked Immunosorbent Assay For Quantitating Immunoglobulin A in Human Secretions and Serum*, Infect. Immun.,29(1):281-3 (July 1980), uses the term *immunobeads.*
7. United States Patent No. 5,602,005 issued on February 11, 1997, uses the terms *affinity beads, immunobeads,* and *immunoaffinity beads. See* col. 20, line 7 (immunobead); col. 21, line 21 (affinity bead); and col. 22, lines 44 (immunoaffinity beads) and 53 (affinity beads).

Lastly, the term *immunobead* is defined as a minute bead coated with antigen or antibody so that it aggregates or agglutinates in the presence of the corresponding antibody or antigen. *See Dorland's Illustrated Medical Dictionary* at **www.mercksource.com**. The term *affinity* is defined as a special attraction for a specific element, organ, or structure. *Id.* The term *bead* is defined as a small spherical structure or mass. *Id.*

In view of the above, it is submitted that claims 30, 38, and 39, are clear and definite within the meaning of 35 USC § 112, second paragraph. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

II. THE ANTICIPATION REJECTION

Claims 26-33, and 39 have been rejected under 35 USC § 102 (e), allegedly as being anticipated by Berliner (US 2002/0001402). This rejection is emphatically traversed.

Berliner is different from the claimed invdention, and fails to render it obvious. Berliner is directed to a method for generating a profile of particulate components of a body fluid sample. Berliner describes a first embodiment where a body fluid sample flows due to gravitational or centrifugal force, down a substrate held at an angle, wherein each particulate component of the body fluid sample adheres to the substrate at a position which is dependent on the size, aggregation tendencies and adherence properties of the particulate component. *See* Berliner at page 6, paragraph [0094]; Figures 3-16, and Examples 1-6.

Examples 1-6 correspond to Figures 3-16 and are described on pages 8-14 of Berliner. Each of Examples 1-6 are directed to the above-described embodiment. Examples 1-6 describe that blood samples were prepared by drawing blood into a syringe preloaded with 3.8% sodium citrate, dispensing several large drops of blood on a glass slide held at an angle, allowing the blood drops to run down the slide, and drying the slide. After drying, an optical image comprising several pre-selected fields of view was obtained. *See* Berliner at page 8, paragraphs [0138] and [0139]; page 9, paragraph [0142] and [0150]; pages 10-11 describing Figures 3-12; and pages 12- 14 describing Figures 13-16.

Berliner describes a second embodiment where a substrate can be coated with a protein in order to determine the presence or absence and/or concentration of cell types in a biological sample. See Berliner at page 6, paragraphs [0106] and [0107]; Figure 17; and in Example 7.

Example 7 of Berliner corresponds to Figure 17. Example 7 describes in paragraph [0230] that two slides were analyzed, one coated with antibodies incapable of interacting with an epitope present on the surface of activated platelets (Figure 17 (a)) and the other coated with antibodies specific against such an epitope (Figure 17 (b)). Blood sample preparation and coating is described in Example 1, paragraphs [0138] and [0139], of Berliner. In this Example, blood was mixed with sodium citrated and dispensed on a glass slide (coated with a protein) held at an angle, and dried.

Claim 26 recites:

> A method for detecting an analyte in a fluid sample comprising:
> (a) mixing said fluid sample with a reagent comprising a capturing agent which is a first member of a binding couple that can bind to an analyte, the analyte being a second member of the binding couple, such that if the analyte is present in the fluid sample, particulates of the binding couple are formed;
> (b) treating said mixture so as to form on a solid substrate a thin layer of said

particulates, if formed as a result of said mixing;

(c) obtaining an optical image of the thin layer; and

(d) analyzing said optical image so as to determine therefrom the absence or presence of particulates formed as a result of the association between the binding couple, the presence of particulates in the sample indicating the presence of said analyte in the sample; or to determine from said image at least one parameter of said particulates.

Berliner does not teach *mixing* a fluid sample with a reagent comprising a capturing agent which is a first member of a binding couple that can bind to an analyte, the analyte being a second member of the binding couple, such that if the analyte is present in the fluid sample, *particulates* of the binding couple are formed. Berliner does not teach mixing the blood sample with anything other than sodium citrate. Berliner teaches applying the blood sample to a glass slide held at an angle. Berliner teaches that when employing a coated slide, the blood sample is applied to a glass slide coated with a protein and held at an angle. Berliner does not teach *mixing* a blood sample with a capturing agent such that particulates are formed *in the mixture* prior to forming a thin layer on the substrate.

Claim 26 describes that if the analyte is present in the sample, particulates of the binding couple are formed. The mixture is then treated so as to form on a solid substrate a thin layer of the particulates, *if formed as a result of the mixing*. Berliner does not teach forming *particulates* of a binding couple in a *mixture* and then forming a thin layer of the particulates if formed, on a substrate.

Rather, Berliner teaches immobilizing the capturing agent (a protein) on a substrate and then dispensing drops of the sample containing analyte on the substrate held at an angle, wherein the analyte binds to the immobilized capturing agent. Accordingly, *particulates* of the binding couple are *not* formed because the capturing protein is *immobilized on the substrate/slide*. Thus, Berliner *does not* teach forming *particulates* of a binding couple.

In addition, claim 26 describes treating the mixture so as to form on a solid substrate a *thin layer* of the particulates, if formed as a result of the mixing. The specification at page 10, lines 13-20, describes a thin layer:

> A "*thin layer*" according to the invention refers to *a substantially uniform layer* of aggregates/particulates of binding couples formed as a result of association between the capturing agent...and the analyte.

Berliner does not teach forming a *thin layer*. Rather, Berliner ***requires*** that the layer of blood sample formed on the glass slide be of ***varying thickness***. Specifically, Berliner ***requires*** that the blood sample be applied to the substrate *held at an angle* such that the sample flows down the slide by gravitational or centrifugal force for a predetermined amount of time, thereby forming a sample layer of ***varying thickness***.

See Berliner at, for example, page 3, paragraph [0034]; page 5, paragraphs [0077]-[0080], and [0092]; page 6, paragraph [0094]; page 7, paragraph [0115]; page 8, paragraph [0138]; page 14, paragraphs [0235] and [0237]-[0240]; page 15, paragraphs [0241]-[0248]; the Examples; and Figures 18-21.

In conclusion, Berliner does not teach *mixing* a fluid sample with a reagent comprising a capturing agent. Berliner does not teach forming *particulates* of a binding couple if the target analyte is present in the sample. Berliner does not teach treating the mixture so as to form on a solid substrate a *thin layer* of said particulates, if formed as a result of the mixing.

Berliner does not teach each and every element of the invention of claims 26-33, and 39, as required for anticipation under 35 USC § 102. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

III. THE OBVIOUSNESS REJECTION

Claims 34-38, have been rejected under 35 USC § 103, allegedly AS being unpatentable over Berliner in view of Kelso (US 2003/0129296). This rejections is also emphatically traversed.

Claims 34-38, are all directly or indirectly dependent on independent claim 26.

A discussion of Berliner is set forth above with reference to the anticipation rejection. Berliner does not teach or suggest any, let alone all of, the steps of: *mixing* a fluid sample with a reagent comprising a capturing agent; forming *particulates* of a binding couple if the target analyte is present in the sample; or treating the mixture so as to form on a solid substrate a *thin layer* of particulates, if formed as a result of the mixing.

Kelso is also different from the claimed invention, and does not cure the deficiencies of Berliner because Kelso also does not teach or suggest *mixing* a fluid sample containing a target with a capturing agent such that *particulates* of the binding couple are formed in the mixture prior to forming a thin layer on a substrate.

Rather, Kelso teaches contacting a substrate coated with film-immobilized capture particles with a sample containing a target molecule. The sample solution of Kelso is not mixed with a capture particle prior to contact with the microarray/substrate. Accordingly, *particulates* of the binding couple are *not* formed in Kelso. *See* Kelso, the Abstract; Examples 1, paragraph [0177]; Example 2, paragraph [0225]; Example 3, paragraph [0299]; Example 4, paragraph [0233]; Example 5, paragraph [0239]; Example 7, paragraph [0256]; Example 8; and Example 9.

Kelso does not cure the deficiencies of Berliner because Kelso also does not teach or suggest *mixing* a fluid sample containing a target with a capturing agent and forming *particulates* of a binding couple if the target analyte is present in the sample.

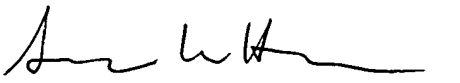
In view of the above, it is submitted that nothing in any of Berliner and Kelso, taken alone or together, renders the invention of claims 34-39 obvious within the meaning of 35 USC § 103. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

CONCLUSION

In view of the foregoing, Applicant submits that the application is in condition for allowance. Early notice to that effect is earnestly solicited. The examiner is invited to contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,
NATH & ASSOCIATES PLLC



Viviana Amzel, Ph.D.
Registration No. 30,930
Susanne M. Hopkins
Registration No. 33,247
Customer No. 20259

Date: December 20, 2005
NATH & ASSOCIATES PLLC
112 South West Street
Alexandria, VA 22314
Tel: (703) 548-NATH
Fax: (703) 683-8396
VA/SMH